Economic Impacts of the Methyl Bromide Ban on the California Strawberry Industry: A Market Level Analysis

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Methyl bromide (MBr) is used in California strawberry production prior to planting in order to reduce weeds, insects, nematodes, and pathogens in the soil. Estimates of the percentage of commercial California strawberry production treated with MBr range from 90 to 99 percent. With the certainty that MBr use will be banned in 2005, growers will have to face several uncertainties that will make their production decisions more difficult.

There are regulatory uncertainties at the international level, such as differential treatments for developed and developing countries, and in the provision that allows countries to exemptions for critical uses. These two sources of uncertainties may alter the relative competitiveness of California producers.

There are also other two regulatory uncertainties at the national/state level. First, EPA does not allocate available MBr among users during the phase out period. Second, the California Department of Pesticide Regulation has its own registration process. California producers might have to face competing growers in other states using EPA-registered alternatives not cleared for California use. Currently there is not viable registered alternative for growers.

We focused on producers' total revenues to evaluate the likely effect of the MBr ban in the industry. Given the uncertainty about viable alternatives and their costs, it is easier to predict revenues rather than profits.

Fresh strawberries are highly perishable, and without storage the quantity available for consumption within a given time period is essentially fixed by the total volume harvested. With a fixed short-run supply, the price that will clear the fresh market depends on the demand characteristics. Since the demand curve slopes downwards, a smaller harvest will clearly lead to a higher price. We estimate the effect of quantity variation on the price that the product will receive in the market. We also make hypotheses of likely values for yield reductions and acreage reductions. Likely values for acreage reduction and yield reduction are supported by scientific evidence and

discussions and interviews with producers, researchers, and other interested parties in the industry. These values of yield and acreage reductions are combined to estimate likely values of quantity reductions and therefore price variations and revenue effects. The most likely scenario consists of a 20 percent reduction in both yield and acreage. This would result in a decline of industry revenue of anywhere from 17 to 28 percent.

Characteristics of the demand for strawberries vary over the course of the season. If the elasticity of demand changes, then the effect of a given reduction in yield and acreage will change. Since the geographic location of production varies over the course of the season, it is possible that the effects of the ban will have different effects on total revenues for different strawberry production areas. We estimate seasonal effects and combine them with a regional disaggregation of production to reveal different regional effects.

Northern California producers are likely to lose more revenue in percentage term than the aggregate analysis would tell us. This is because during the peak of the production period, prices are less sensitive to a reduction in production. If prices rise less, then revenues decrease more. Southern California producers are not going to be much better. Their loss will depend a lot on the capacity of Mexican producers to enter the market and compensate for California reduced production. In the worst scenario, they might end up losing 36% of their revenues.

In conclusion, Strawberry growers will face a particularly uncertain environment over the next few years. We have highlighted the major sources of regulatory uncertainty that growers will face during and past the phase out period. There is uncertainty regarding the availability, efficacy, and cost of methyl bromide alternatives, and regarding the ultimate effect of the ban on industry revenues, costs and profits. The limited information on the likely production cost impacts of the ban further suggests that estimates of the decline in total industry revenues underestimate the decline in net industry revenues. At the same time, these results should be considered far from conclusive. There is a lot of effort from producers and research institutions that might bring new lights into the problem, as some of the uncertainties we indicate are clarified.